

Electric Light & Power

THE NEWS MAGAZINE OF ELECTRIC UTILITY MANAGEMENT AND TECHNOLOGY

Boiler suppliers ask for investigation of "secret, illegal" foreign financing deals

Robert Smock
Managing Editor

The American Boiler Manufacturers Association (ABMA) has asked the U.S. Dept. of Commerce to investigate the possibility that foreign governments are subsidizing illegal financing deals.

The action came in the wake of meetings of the ABMA board of directors following publication of a description in the November, 1981 issue of *Electric Light & Power* of foreign financing schemes proposed for Atlantic Electric Co.

A letter from ABMA executive director, William Axtman, to Commerce Secretary Malcolm Baldrige says, "As you can appreciate, the sale of industrial and utility boilers is highly individualized, often on a sealed bid basis. Rarely are the key terms of the winning contract publicly disclosed. This fact makes the American boiler manufacturers highly vulnerable to secret illegal financing deals offered by foreign suppliers. The American boiler industry is therefore dependent on your department's capacity to ferret out the terms of illegal export subsidies, in order to lay the foundation for formal proceedings leading to the imposition of countervailing duties."

The ABMA complaint referred to two specific cases: the deal discussed by Atlantic City Electric Co. and the French firm, Cogenel, for equipment for a \$550 million power plant and "...unconfirmed reports of the use of non-commercial financing terms by Gotaverken, a Swedish firm, to sell a chemical recovery boiler to Great Northern Nekoosa/KKO for a plant at New Augusta, Mississippi."

An Atlantic Electric spokesman

denied that the Cogenel financing offer violates U.S. tariff law.

A bulletin sent by ABMA to its 107 member firms says that this situation has been developing for several months, adding that commercial sized units from South America are also being considered by U.S. buyers. The bulletin says there is a "presumption" that these sales include

financing that is not generally available on a commercial basis, financing that is subsidized by foreign governments to spur exports from their countries. Such subsidies would be a violation of U.S. tariff law and would call for the Commerce Dept. to impose countervailing duties on the price of the imported products to cancel out the effect of the banned sub-

dy, explained John Kenkel of the department's office of investigations. He said the ABMA complaint had not yet filtered down to his office but that it probably would since investigations of prohibited financing are already underway. "It happens a lot," Kenkel said, especially with suppliers from European countries such as

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Coal show sets exhibitor record

Exhibit space was up a whopping 45 percent at this year's Coal Utilization Exhibition in Houston. Attendees learned of new developments in synfuels, coal conversion technology, rail rates, coal exports, and new mining technology. See page 23 for a report.

NRC suspends Diablo Canyon test license

WASHINGTON, D.C. — Declaring that its staff had identified "serious weaknesses in PG&E's quality assurance program," the Nuclear Regulatory Commission has announced that it has suspended the fuel loading and low power testing license for the Diablo Canyon nuclear plant.

Although Pacific Gas & Electric, owner and builder of the two-unit nuclear station, could have appealed the NRC's order, it has decided not to do so.

Specifically, the NRC found that the utility's quality assurance program did not effectively control the review and approval of design information that passed to and from the company's major service subcontractor, John Blume and Associates.

In addition, the agency found that the company's quality assurance program did not adequately control the distribution of design information from Blume within the company.

Finally, inadequacies in quality assurance were discovered with respect to other service-related contracts.

"This new information," the NRC said in its November 19 order, "indicates that, contrary to statements made in PG&E's operating license application, certain structures, systems, and components important to

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Media blitz riles consumer advocates

EEl launches ad campaign aimed at state regulators, decision makers

SAN FRANCISCO — The Edison Electric Institute launched its first media offensive for higher utility rates at the meeting of regulatory commissioners here, and was immediately denounced by state consumer advocates for subverting the regulatory hearing process.

On the second day of the annual convention of the National Association of Regulatory Utility Commissioners (November 17), two full-page advertisements appeared in both the *Wall Street Journal* and the *San Francisco Chronicle* detailing the industry's case for higher rates of return. Former Wisconsin Public Service Commission chairman Charles J. Cicchetti was shown turning away

from his blackboard to inform *Journal* readers that "rates of return have been kept so low that stockholders are often subsidizing consumers," and that "unless remedial action is taken, the future may well include power rationing, routine blackouts and brownouts."

Noting that \$350 billion to \$500 billion will have to be spent over the next decade by electric companies to provide new plants and equipment, Cicchetti advised regulatory commissions to permit rates of return on equity of "at least 17 percent, and perhaps 19 percent or more, based on real earnings, not accounting devices."

Cicchetti also called for expedited

rate proceedings, reduced regulatory lag, interim rates, and automatic rate adjustments for inflation, higher wage costs, higher capital costs, and other factors that "are clearly beyond the control of utility management."

EEl will spend about \$2.5 million over the next 14 months trying to reach "those influential people who read influential publications," an EEl spokesman said.

Edison spokesman Dick Morrissey estimated that at least 9 separate ads will be run through 1982, with some of them appearing in multiple publications simultaneously. On December 7, Alvin L. Alm shared his views on "America's hidden energy crisis"

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**ELECTRIC
INDUSTRY
MAN OF
THE YEAR**

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CECo sees 2% peak growth, governor's study may show less

CHICAGO — Commonwealth Edison Company, which has one of the most ambitious nuclear power construction programs in the nation, has reduced its estimated annual peak load growth from 3 percent to 2 percent over the next decade and there are indications that it may ultimately turn out to be even less.

In addition, the company has announced deferral of its planned two-unit Carroll County nuclear station and has reduced estimated expenditures on its 5-year construction budget. The two Carroll County plants, each of nominal 1,120 megawatts, have been deferred from 1993 and 1994 startup to 1999 and 2000,

respectively. The company's construction budget for the years 1982 through 1986 has been reduced from \$5.85 billion to \$5.55 billion.

In response to this estimated demand reduction, the company has also decided that it would postpone its Langham coal-fired station near Seneca, Illinois. Each of the two 550 MW units will be deferred, the first from 1991 to 1992, and the second from 1996 to 1997.

Commonwealth Edison, which experienced a 6.5 percent decline in peak demand from 1980 to 1981 (see *EL&P*, October, 1981, page 3), had been predicting, as late as October, that it would see a 17.3 percent jump

in peak demand during 1982, according to a company forecast prepared for utility analysts. This figure ("An ambitious prediction," a company spokesman said) was revised in late November to reflect a peak load growth for 1982 of 10.2 percent.

Commonwealth Edison currently has 6 nuclear plants in construction, representing an additional aggregate generating capacity of 6,636 megawatts. All of these plants are well beyond the 50 percent construction completion stage and the La Salle plants are virtually ready for startup.

In its November 1, 1981 report to stockholders, Commonwealth Edison recorded a decrease of 0.6 percent in

kilowatt hours sold to ultimate customers during the first 9 months of 1981. Corresponding revenues for the period were up 14.2 percent.

According to company spokesman John Hogan, the primary reasons for the reduced peak demand forecasts are conservation and the poor state of the economy.

Independent forecast by Governor

The Illinois Governor's Office of Consumer Services, noting that consumers had raised sufficiently challenging questions in CECO rate cases regarding the prudence of the company's construction program, said

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EEl ad campaign . . . from page 1



Former Wisconsin regulator Dr. Charles J. Cicchetti appears in *The Wall Street Journal* as part of the Edison Electric Institute's media campaign revealing the details of "America's hidden energy problem."

by stating flatly in *The Wall Street Journal* that "the investor-owned electric utility industry is in trouble." Alm, who is director of the Energy Security Program in the Kennedy School of Government at Harvard University said the solution to the problem was, again, to allow utilities

to earn higher rates of return, to be rewarded for cost-savings improvements, and to seek to meet future power needs through innovative approaches.

EEl has noted in its ads that those persons who speak for the electric utility industry are not paid for ar-

ticulating their positions. In mid-December, the Institute said it was looking for additional "authoritative, knowledgeable people to recruit to do these kinds of ads."

Consumer advocates angered

Not coincidentally, the first EEl-sponsored media offensive appeared in *The Wall Street Journal* and the *San Francisco Chronicle* on the second day of the annual meeting of the National Association of Regulatory Utility Commissioners. The National Association of State Utility Consumer Advocates, which was meeting in San Francisco concurrently with the regulatory commissioners, lashed out at the industry's proposed financing program (as outlined in the advertisements) and at the program's planned implementation.

"The financial program they have put forward is deficient on its face," William A. Spratley, president of NASUCA and a state consumer advocate in Ohio charged at a press conference the day *The Wall Street Journal* ad appeared.

And according to Byron Lederer of the People's Counsel of Washington, D.C., "The inherent contradiction (in the industry's) financial program is...the size of the capital expenditure (about 150 percent increase in total capitalization over the next 10 years) versus (the industry's) own forecast of about 25 percent sales growth (over the period)."

Added Lederer, "Any banker — any person with an elementary financial sense — can see that the program is a financial disaster before it is launched. That's the problem we have with it."

"Assume (electric utilities) get those rate increases," Lederer continued. "Assume that they are right, that everything that they are doing is absolutely needed for adequate, reliable service to avoid brownouts. Assume (the industry's) forecasts are right, and then assume they get their \$400 to \$700 million. Now what do people think that customers will do in reaction to that?"

While NASUCA estimates that raising \$350 to \$500 billion in new capital would require \$400 to \$700 billion in rate increases, Charles Cicchetti, in his *Wall Street Journal* piece, put consumer impact in terms of the increased bills that would result from utilities being granted about 50 percent increase in income. "Overall consumer bills would increase by less than 5 percent," Cicchetti said.

The consumer advocates not only denounced the details of the industry's financial plan over the next decade, but they hit what they saw as an attempt to adversely influence the regulatory process. "This is a frontal attack on state regulation," Spratley said. Declaring that what the industry was after was rapid rate increases

without full regulatory proceedings, the Ohio consumer advocate said, "If they start making things more automatic, if they start being able to increase rates faster with less regulatory review, this is an attack on the regulatory process. It is not just a plan of financing. They're going to have to change laws, they're going to have to move commissions, and so forth. And this is easier in some states than in others."

"It is wholly inappropriate to try to influence public officials by purchasing newspaper ads with customers' dollars," Spratley concluded. "We will return to our states and oppose continued levies upon our customers to pay for this continuing propaganda campaign."

The issue of whether the ads were purchased with ratepayer money remains unclear. The consumer advocates claimed that customer money was used, but they offered little evidence to support this. On the other hand, the Edison Electric Institute could not say categorically that ratepayer money was not used. The institute, in fact, conceded that some of the ads probably were and would be funded by ratepayer money, but it could provide no estimate as to how much. "In certain situations it might be (ratepayer money)," EEl's Kirk Willison allowed. But, he added, determinations as to whether dues to the Institute for advertising are paid for by consumers varies from state to state. "I don't have information on how this is broken down," he said.

Commissioners react

Reactions by regulators to EEl's media blitz varied. Questioned at the meeting in San Francisco, one commissioner said that, contrasted to overall expenses of an electric utility, the cost of the program, if distributed to ratepayers of EEl member companies, would be negligible. Another commissioner commented that the EEl program was an inappropriate way to reach the public because the advertisements were not sufficiently fundamental to point out what the so-called crisis was all about. Said this regulator, "I'll now begin to scrutinize more carefully utilities contributions to EEl."

Finally, one regulator differentiated between the effect of EEl's planned capital expansion program in the short and long term. Given the current instability of the financial markets, he said, utility rates of return should be allowed to drift upward in order to keep electric companies solvent. But, according to this commissioner, the implied consequences in the longer term are potentially more severe. "Are people still going to want to buy electricity," he questioned, "at costs that are required to finance and build new power plants?"

In This Issue

Editorial

Coal's pre-eminence as an electric utility industry fuel was made clear at the Fourth Annual Coal Utilization Conference and Exhibition in Houston. E/G

The development of new coal conversion technology got a setback with the loss of federal funding, but work continues on several promising projects. E/G

The PCB disposal problem is large, but not as large as once feared, according to new survey results reported at an EPRI seminar. T/D

A T&D industrial engineering program has paid off for Public Service Indiana. T/D

Coal exhaust liner replacement cost has been cut by using ceramic liners. E/G

Slag rappers installed on a boiler roof can reduce the potential for injury to maintenance workers. E/G

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EL&P readers whose responsibilities include both Generation and Transmission/Distribution receive both technology sections. Other readers receive the technology section that applies to their respective area of responsibility. The Generation edition is indicated by a single dot (•) in the upper right corner of page 1; the T/D edition carries two dots (••). All readers receive EL&P's industry news section.

PCB-contaminated oil problem less than formerly thought, according to survey

DALLAS — PCB contamination of insulating oil in electrical equipment is not as large a problem — quantitatively — as was previously thought, according to survey data presented at an EPRI-sponsored seminar here.

The survey response indicated there is only 100 million gallons of oil contaminated with more than 50 ppm of the polychlorinated biphenyl, or PCB chemical that was used as a fire-resistant insulator prior to 1977. Previous estimates of the amount of contaminated oil to be dealt with were five to ten times that high. Expert opinion at the EPRI seminar indicated that the PCB-laden oil could be drained, burned in utility boilers, and replaced with fresh mineral oil because the total amount is equal to only one year's supply.

The survey results, shown in Tables 1-3, were reported by W. Corey Trench, associate environmental scientist for the Edison Electric Institute. The survey produced data from 98 utilities representing almost 70 percent of all utility-owned electrical equipment. The results were extrapolated to cover the entire utility industry. The survey was part of a court-ordered program involving EEI, the Environmental Defense Fund, and the Environmental Protection Agency to gather facts to see if PCB-contaminated mineral oil transformers are to be allowed to remain in service. A final report is due on January 12, 1982 and new regulations are due on August 12.

A 'vast difference'

Looking at the survey results, EPRI's manager of transformer design projects Ed Norton said, "There's a vast difference between these numbers and previous numbers." Another EPRI official, Gil Addis, seminar organizer, said, "Two weeks ago I thought one billion gallons of contaminated transformer oil would have to be replaced. The survey shows only 100 million. We're rethinking our position."

Former published estimates by EPRI put the total amount of contaminated transformer oil at 500 to 800 million gallons. An article in the October 1981 issue of *EPRI Journal* said, "...transformer-quality naphthenic oil may not be available in sufficiently large quantities to replace all the contaminated oil at once..."

The article focussed on the need to separate the PCB material from insulating oil or to destroy the PCBs so the oil could be reused.

The new data, said EPRI's Norton, shows that the replacement problem is not so great and that reuse may not be imperative. Insulating oil production capacity is about 100 million gallons per year, he explained, meaning that replacing all the contaminated oil would require the equivalent of only one year's supply, not 5 to 10 years, as formerly thought.

That reduces the cost impact of replacement on the utility industry. Norton estimated that the cost of replacement oil would be about \$1.50 a gallon. The contaminated oil has a

value of \$0.50 a gallon if burned in a boiler, so the net replacement cost would be about \$1.00 a gallon. About half a dozen utilities have already obtained EPA approval to burn oil with less than 500 ppm in their boilers.

Data accuracy

Norton estimated that the accuracy of the data in the EEI survey is about plus-or-minus 20 percent. He said that the main reason for the difference in the estimates of the amount of contaminated oil is that the new data shows far fewer transformers in service than previously thought. Former estimates, based on NEMA numbers for large power transformers, led to overestimates of the number of medium size and distribution transformers.

The survey showed that there are only 250,000 medium-size mineral-oil transformers in place at electric utilities (rated 500 kVA to 10,000 kVA.) Earlier estimates had placed that number as high as 5 million. The survey showed 25,000 large power transformers rated 10,000 kVA and 115 kV and above and, in the small end of the range, 20 million distribution transformers rated less than 500 kVA. According to the survey 10 percent of the total amount of mineral oil in these units (one billion gallons) is

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TABLE 1: AMOUNT OF ASKAREL AND OIL-FILLED EQUIPMENT OWNED BY THE ELECTRIC UTILITY INDUSTRY BY PCB CONCENTRATION

Equipment type	Number of units in the industry	Number of units containing 50 ppm or greater PCBs	Number of units containing 500 ppm or greater PCBs
Askarel transformers	39,640	39,640	39,640
Mineral oil transformers	20,227,428	2,386,077	219,918
PCB capacitors	2,800,619	2,800,619	2,800,619
Voltage regulators	145,159	20,322	2,468
Oil-filled circuit breakers	180,939	3,256	0
Oil-filled reclosers	170,158	0	0
Oil-filled switches	385,768	54,007	0
Oil-filled/Askarel electromagnets	77	—	—
TOTAL	23,949,788	5,303,921	3,082,645

In addition to the above equipment, there are 6,545 miles of oil-filled underground cable owned by the utility industry. There are limited data available on the PCBs contained in this cable that indicate PCB concentrations are below 10 ppm.

TABLE 2: VOLUME OF FLUID AND POUNDS OF PCBs CONTAINED IN UTILITY INDUSTRY EQUIPMENT

Equipment type	Total gallons of fluid	Total pounds of PCBs
Askarel transformers	8,525,404	74,597,283
Mineral oil transformers	958,365,880	262,230
PCB capacitors	7,547,869	87,562,960
Voltage regulators	17,840,968	6,707
Oil-filled circuit breakers	137,335,668	12,885
Oil-filled reclosers	3,403,670	410
Oil-filled switches/sectionalizers	1,415,769	329
TOTAL	1,134,436,026	162,432,604

DECo tests show 'Compoles' offer savings

DETROIT — Detroit Edison Co. tests of the composite wooden poles developed by Michigan Technological University (See EL&P, August 1981, page 37) indicate that the poles offer strong, long life and, if mass produced, the potential of substantial cost savings.

The poles, called "Compoles," are manufactured in a hollow, octagonal cross-section from pressure treated wood flakes bonded together with a synthetic adhesive.

According to DECo vice president of planning and research Clay Mitchell, the "Compoles" appear to be a "perfect example" of the company's continuing efforts to control the cost of delivery of its product to customers. "We have been testing 'Compoles' and 'Comarms' (fabricated crossarms) in the field with very good results. If (the poles) were mass produced, we could conserve energy and resources because we are no longer limited to using only high-strength trees," he said.

Savings increase with pole length

DECo says the varying availability and continuously escalating prices of

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Linemen find climbing a composite wood pole easy and splinter-free. Detroit Edison considers the composite poles to be strong, durable and economic if produced in quantity. A standard fir pole is at right of the octagonal, hollow composite pole.



PCB-contaminated oil . . . from page 37

contaminated with 50 ppm or more PCBs. Norton pointed out that these numbers cover only electric utilities. There are a large number of transformers owned by others, such as the 200,000 mid-size transformers owned by industry, according to Norton's estimate.

Capacitor problem

The EEI survey showed that the magnitude of the problem with PCB capacitors was about the same as estimated before. As shown in the survey result tables and Norton's summary of the capacitor findings shown in Table 4, there are 2.8 million PCB capacitors in service. The portion that ruptures and spills each year is about 0.09 percent, or 2500 per year, according to the survey.

Norton's analysis in Table 4 shows

that it would take about 7.5 years for capacitor manufacturers to replace the 280,000 MVAR of PCB equipment (and continue to serve current needs) at an estimated industry manufacturing capacity of 60,000 MVAR per year.

To date only a few utilities have publicly announced plans to completely replace all their PCB capacitors. EPRI is searching for a reliable method to predict incipient failures of capacitors in order to eliminate spill contamination in a more cost-effective manner, according to seminar organizer, Gil Addis.

Where's the rest of the PCB?

The earlier EPRI report on the PCB problem showed that 1.4 billion lb of PCBs were produced in the U.S. between 1929, when manufacturing

started, and 1977, when it stopped. The EPRI analysis said that 3.6 percent of that total had been destroyed, 10.7 percent had been exported, 21.4 percent had been buried in landfills, and 10.7 percent escaped to the environment where it tends to persist, being relatively non-biodegradable. That leaves 53.6 percent of the original amount, or 762 million lb of PCB

that still exist somewhere in the U.S.

If, as the EEI survey shows (in Table 2), there are only 162 million lb of PCBs in utility equipment, then where's the rest? Norton pointed out that there are many transformers in service that are not owned by electric utilities and that PCBs were used in a wide variety of other equipment such as ballasts for fluorescent lights.

TABLE 3: ANNUAL LEAKAGE AND SPILL RATES FOR EQUIPMENT IN THE UTILITY INDUSTRY

Equipment type	Annual % of equipment developing small leaks of ≥ 50 ppm PCBs	Annual % of equipment developing moderate leaks of ≥ 50 ppm PCBs	Annual % of equipment developing PCB spills
Mineral oil transformers	0.15%	<0.09%	0.007%
PCB capacitors	2.3	0.77	0.09
Voltage regulators	<0.10	<0.10	0.024
Oil-filled circuit breakers	0.27	0.19	0.008
Oil-filled reclosers	Not avail.	Not avail.	0.004
Oil-filled switches/sectionalizers	Not avail.	Not avail.	0.007

TABLE 4: CAPACITORS

Units in service	2,800,000	Average size	100 KVAR
MVAR in service	280,000 MVAR	1980 Production	21,000 MVAR
1980 Plant capacity operated at	60%		
Capacity increase being accomplished by:			
1. Improving productivity and operating at full capacity (100% improvement)			
2. Increased demand for more KVAR per can (50% improvement)			
New capacity			
60,000 MVAR/year			
Conclusion			
To replace 2,800,000 capacitors (280,000 MVAR) and supply normal capacitor needs with above assumptions would take 7.5 years.			
Estimates by the industry of 5 to 10 years for replacement seems reasonable.			

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Inquire R.S. 26

TVA dedicates nation's first electric vehicle test facility

CHATTANOOGA — The Tennessee Valley Authority has dedicated the nation's first test facility devoted exclusively to the evaluation of electric vehicles. The test tract, which is composed of a one-mile long dual banked track and a 9600 sq ft passive solar workshop and laboratory, is located here and will be used to evaluate the safety, reliability and performance of electric vehicles and their

components. Present plans call for testing to determine the potential for EVs as delivery trucks, second family cars and for mass transit applications.

Leaders in the electric vehicle field participating in the dedication heralded the event as a milestone in the development of the automobile that could ultimately lead to as many as 12.5 million EVs being on the road by the year 2000, according to industry estimates.

The facility is the result of joint support from the Electric Power Research Institute and the Department of Energy. DOE is especially interested in the second-car potential for EVs.

Linemen's working lives extended



Southwestern Public Service Co., former EL&P Electric Utility of the Year (1978) and historically one of the industry's better managed utilities, says it is extending the productive working lives of its linemen by as much as 12 years through the use of pickup truck mounted aerial lift devices. Use of units as shown above, one of 34 Skyjacker bucket lifts mounted on 3/4-ton pickups, keeps linemen at their highest productivity at a time when advancing age begins to have an adverse effect.

Compoles . . .

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Douglas fir and southern pine poles prompted the search for a substitute.

The utility reports that the composite wood pole, when mass produced, will be cost competitive with a standard 40-ft pole. But savings of up to 50 percent are projected for poles in the 80- to 100-ft range.

Other benefits

The composite wood poles and cross-arms, says DECO, are less flammable and easier to handle than their solid wood counterparts, without sacrificing strength for their light weight. The poles also are smooth, clean and are easily climbed by linemen. Increased life results from extensive preservative penetration that comes from treating the wood flakes before they are compressed into the boards used to fabricate the poles. In addition, the preservative does not make the composite poles any more corrosive to pole line hardware than hardwoods.